

**What Is Claimed Is:**

- 1           1.       A method for scheduling processes within an operating system  
2       based upon virtual server identifiers, wherein the operating system supports  
3       multiple virtual servers that operate within separate virtual environments on a  
4       single computing platform, the method comprising:  
5           detecting an event that causes a scheduling priority for a process to be  
6       updated;  
7           looking up a virtual server identifier for the process, wherein the virtual  
8       server identifier specifies a virtual server and an associated virtual environment  
9       that the process operates within;  
10          using the virtual server identifier to look up a scheduling priority  
11       associated with the virtual server; and  
12          calculating an updated scheduling priority for the process based upon the  
13       scheduling priority associated with the virtual server.
- 1           2.       The method of claim 1, wherein calculating the updated scheduling  
2       priority involves calculating the updated scheduling priority based upon:  
3           a value,  $E$ , stored within a priority-related timer that keeps track of  
4       execution time for the process;  
5           a system priority,  $S_p$ , associated with the process; and  
6           the scheduling priority,  $M$ , associated with the virtual server.
- 1           3.       The method of claim 2, wherein calculating the updated scheduling  
2       priority,  $P$ , involves calculating  $P = S_p + S(E/M)$ , wherein  $S$  is a tunable constant  
3       value.

1           4.     The method of claim 1, wherein the method further comprises:  
2           receiving a command to adjust the scheduling priority associated with the  
3     virtual server;  
4           if the command is received from an authorized entity, adjusting the  
5     scheduling priority associated with the virtual server so that the scheduling  
6     priorities of all processes associated with the virtual server are modified.

1           5.     The method of claim 1, wherein the method further comprises  
2     charging a fee for hosting the virtual server, wherein the fee is based upon the  
3     scheduling priority associated with the virtual server.

1           6.     The method of claim 1, wherein detecting the event that causes the  
2     scheduling priority for the process to be updated involves detecting one of:  
3           the process entering a sleep state;  
4           the process waking up from the sleep state; and  
5           a priority-related timer associated with the process reaching a maximum  
6     value.

1           7.     The method of claim 1, wherein looking up the virtual server  
2     identifier for the process involves looking up the virtual server identifier within a  
3     process structure maintained by the operating system for the process.

1           8.     A computer-readable storage medium storing instructions that  
2     when executed by a computer cause the computer to perform a method for  
3     scheduling processes within an operating system based upon virtual server  
4     identifiers, wherein the operating system supports multiple virtual servers that

5 operate within separate virtual environments on a single computing platform, the  
6 method comprising:  
7 detecting an event that causes a scheduling priority for a process to be  
8 updated;  
9 looking up a virtual server identifier for the process, wherein the virtual  
10 server identifier specifies a virtual server and an associated virtual environment  
11 that the process operates within;  
12 using the virtual server identifier to look up a scheduling priority  
13 associated with the virtual server; and  
14 calculating an updated scheduling priority for the process based upon the  
15 scheduling priority associated with the virtual server.

1 9. The computer-readable storage medium of claim 8, wherein  
2 calculating the updated scheduling priority involves calculating the updated  
3 scheduling priority based upon:  
4 a value,  $E$ , stored within a priority-related timer that keeps track of  
5 execution time for the process;  
6 a system priority,  $S_p$ , associated with the process; and  
7 the scheduling priority,  $M$ , associated with the virtual server.

1 10. The computer-readable storage medium of claim 9, wherein  
2 calculating the updated scheduling priority,  $P$ , involves calculating  $P = S_p +$   
3  $S(E/M)$ , wherein  $S$  is a tunable constant value.

1 11. The computer-readable storage medium of claim 8, wherein the  
2 method further comprises:

1 receiving a command to adjust the scheduling priority associated with the  
2 virtual server;  
3 if the command is received from an authorized entity, adjusting the  
4 scheduling priority associated with the virtual server so that the scheduling  
5 priorities of all processes associated with the virtual server are modified.

1 12. The computer-readable storage medium of claim 8, wherein the  
2 method further comprises charging a fee for hosting the virtual server, wherein the  
3 fee is based upon the scheduling priority associated with the virtual server.

1 13. The computer-readable storage medium of claim 8, wherein  
2 detecting the event that causes the scheduling priority for the process to be  
3 updated involves detecting one of:  
4 the process entering a sleep state;  
5 the process waking up from the sleep state; and  
6 a priority-related timer associated with the process reaching a maximum  
7 value.

1 14. The computer-readable storage medium of claim 8, wherein  
2 looking up the virtual server identifier for the process involves looking up the  
3 virtual server identifier within a process structure maintained by the operating  
4 system for the process.

1 15. An apparatus that schedules processes within an operating system  
2 based upon virtual server identifiers, wherein the operating system supports  
3 multiple virtual servers that operate within separate virtual environments on a  
4 single computing platform, the apparatus comprising:

5 a detection mechanism that is configured to detect an event that causes a  
6 scheduling priority for a process to be updated;  
7 a lookup mechanism that is configured to look up a virtual server identifier  
8 for the process, wherein the virtual server identifier specifies a virtual server and  
9 an associated virtual environment that the process operates within;  
10 wherein the lookup mechanism is additionally configured to use the virtual  
11 server identifier to look up a scheduling priority associated with the virtual server;  
12 and  
13 a calculating mechanism that is configured to calculate an updated  
14 scheduling priority for the process based upon the scheduling priority associated  
15 with the virtual server.

1 16. The apparatus of claim 15, wherein the calculating mechanism is  
2 configured to calculate the updated scheduling priority based upon:  
3 a value,  $E$ , stored within a priority-related timer that keeps track of  
4 execution time for the process;  
5 a system priority,  $S_P$ , associated with the process; and  
6 the scheduling priority,  $M$ , associated with the virtual server.

1 17. The apparatus of claim 16, wherein the calculating mechanism is  
2 configured to calculate the updated scheduling priority,  $P$ , by calculating  
3  $P = S_P + S(E/M)$ , wherein  $S$  is a tunable constant value.

1 18. The apparatus of claim 15, further comprising a priority adjustment  
2 mechanism that is configured to:  
3 receive a command to adjust the scheduling priority associated with the  
4 virtual server; and to

1           adjust the scheduling priority associated with the virtual server so that the  
2           scheduling priorities of all processes associated with the virtual server are  
3           modified, if the command is received from an authorized entity.

1           19.     The apparatus of claim 15, further comprising a fee calculation  
2           mechanism that is configured to calculate a fee for hosting the virtual server based  
3           upon the scheduling priority associated with the virtual server.

1           20.     The apparatus of claim 15, wherein the detection mechanism is  
2           configured to detect one of:  
3           the process entering a sleep state;  
4           the process waking up from the sleep state; and  
5           a priority-related timer associated with the process reaching a maximum  
6           value.

1           21.     The apparatus of claim 15, wherein the lookup mechanism is  
2           configured to look up the virtual server identifier for the process by looking up the  
3           virtual server identifier within a process structure maintained by the operating  
4           system for the process.